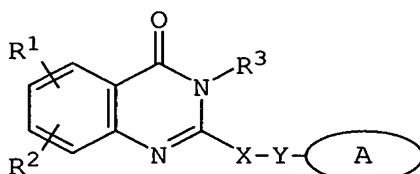


IN THE CLAIMS:

1. (Currently amended) A method of disrupting leukocyte function comprising a step of contacting leukocytes with a compound having a structure



(I)

wherein A is an optionally substituted monocyclic 5-membered heterocyclic ring system containing two or three nitrogen atoms or a bicyclic ring system containing at least two nitrogen atoms, and at least one ring of the bicyclic system is aromatic;

X is selected from the group consisting of C(R^b)₂, CH₂CHR^b, and CH=C(R^b);

Y is selected from the group consisting of null, S, SO, and SO₂, NH, O, C(=O), OC(=O), C(=O)O, and NHC(=O)CH₂S;

R¹ and R², independently, are selected from the group consisting of hydrogen, C₁₋₆alkyl, aryl, heteroaryl, halo, NHC(=O)C₁₋₃alkyleneN(R^a)₂, NO₂, OR^a, CF₃, OCF₃, N(R^a)₂, CN, OC(=O)R^a, C(=O)R^a, C(=O)OR^a, arylOR^b, Het, NR^aC(=O)C₁₋₃alkyleneC(=O)OR^a, arylO-C₁₋₃alkyleneN(R^a)₂, arylOC(=O)R^a, C₁₋₄alkyleneC(=O)OR^a, OC₁₋₄alkyleneC(=O)OR^a, C₁₋₄alkyleneOC₁₋₄alkyleneC(=O)-OR^a, C(=O)NR^aSO₂R^a, C₁₋₄alkyleneN(R^a)₂, C₂₋₆alkenylene-N(R^a)₂, C(=O)NR^aC₁₋₄alkyleneOR^a, C(=O)NR^aC₁₋₄alkyleneHet, OC₂₋₄alkyleneN(R^a)₂, OC₁₋₄alkyleneCH(OR^b)CH₂N(R^a)₂,

OC₁₋₄alkyleneHet, OC₂₋₄alkyleneOR^a, OC₂₋₄alkyleneNR^aC(=O)-OR^a, NR^aC₁₋₄alkyleneN(R^a)₂, NR^aC(=O)R^a, NR^aC(=O)N(R^a)₂, N(SO₂C₁₋₄alkyl)₂, NR^a(SO₂C₁₋₄alkyl), SO₂N(R^a)₂, OSO₂CF₃, C₁₋₃alkylenearyl, C₁₋₄alkyleneHet, C₁₋₆alkyleneOR^b, C₁₋₃alkyleneN(R^a)₂, C(=O)N(R^a)₂, NHC(=O)C₁₋₃alkylenearyl, C₃₋₈cycloalkyl, C₃₋₈heterocycloalkyl, arylOC₁₋₃alkyleneN(R^a)₂, arylOC(=O)R^b, NHC(=O)C₁₋₃alkyleneC₃₋₈heterocycloalkyl, NHC(=O)C₁₋₃alkyleneHet, OC₁₋₄alkyleneOC₁₋₄alkyleneC(=O)OR^b, C(=O)C₁₋₄alkyleneHet, and NHC(=O)haloC₁₋₆alkyl;

or R¹ and R² are taken together to form a 3- or 4-membered alkylene or alkenylene chain component of a 5- or 6-membered ring, optionally containing at least one heteroatom;

R³ is selected from the group consisting of optionally substituted hydrogen, C₁₋₆alkyl, C₃₋₈cycloalkyl, C₃₋₈heterocycloalkyl, C₁₋₄alkylenecycloalkyl, C₂₋₆alkenyl, C₁₋₃alkylenearyl, arylC₁₋₃alkyl, C(=O)R^a, aryl, heteroaryl, C(=O)OR^a, C(=O)N(R^a)₂, C(=S)N(R^a)₂, SO₂R^a, SO₂N(R^a)₂, S(=O)R^a, S(=O)N(R^a)₂, C(=O)NR^aC₁₋₄alkyleneOR^a, C(=O)NR^aC₁₋₄alkyleneHet, C(=O)C₁₋₄alkylenearyl, C(=O)C₁₋₄alkyleneheteroaryl, C₁₋₄alkylenearyl substituted with one or more of SO₂N(R^a)₂, N(R^a)₂, C(=O)OR^a, NR^aSO₂CF₃, CN, NO₂, C(=O)R^a, OR^a, C₁₋₄alkyleneN(R^a)₂, and OC₁₋₄alkyleneN(R^a)₂, C₁₋₄alkyleneheteroaryl, C₁₋₄alkyleneHet, C₁₋₄alkyleneC(=O)C₁₋₄alkylenearyl, C₁₋₄alkyleneC(=O)-C₁₋₄alkyleneheteroaryl, C₁₋₄alkyleneC(=O)Het, C₁₋₄alkyleneC(=O)N(R^a)₂, C₁₋₄alkyleneOR^a, C₁₋₄alkyleneNR^aC(=O)R^a, C₁₋₄alkyleneOC₁₋₄alkyleneOR^a, C₁₋₄alkyleneN(R^a)₂, C₁₋₄alkyleneC(=O)OR^a, and C₁₋₄alkyleneOC₁₋₄alkyleneC(=O)OR^a;

R^a is selected from the group consisting of hydrogen, C₁₋₆alkyl, C₃₋₈cycloalkyl, C₃₋₈heterocycloalkyl, C₁₋₃alkyleneN(R^c)₂, aryl, arylC₁₋₃alkyl, C₁₋₃alkylenearyl,

heteroaryl, heteroarylC₁₋₃alkyl, and C₁₋₃alkyleneheteroaryl;

or two R^a groups are taken together to form a 5- or 6-membered ring, optionally containing at least one heteroatom;

R^b is selected from the group consisting of hydrogen, C₁₋₆alkyl, heteroC₁₋₃alkyl, C₁₋₃alkyleneheteroC₁₋₃alkyl, arylheteroC₁₋₃alkyl, and aryl, heteroaryl, arylC₁₋₃alkyl, heteroarylC₁₋₃alkyl, C₁₋₃alkylenearyl, and C₁₋₃alkyleneheteroaryl;

R^c is selected from the group consisting of hydrogen, C₁₋₆alkyl, C₃₋₈cycloalkyl, aryl, and heteroaryl;

Het is a 5- or 6-membered heterocyclic ring, saturated or partially or fully unsaturated, containing at least one heteroatom selected from the group consisting of oxygen, nitrogen, and sulfur, selected from the group consisting of 1,3-dioxolane, 2-pyrazoline, pyrazolidine, pyrrolidine, piperazine, pyrroline, 2H-pyran, 4H-pyran, morpholine, thiomorpholine, piperidine, 1,4-dithiane, and 1,4-dioxane, and optionally substituted with C₁₋₄alkyl or C(=O)OR^a;

and pharmaceutically acceptable salts ~~and~~ or solvates,

in an amount sufficient to inhibit phosphatidylinositol 3-kinase delta activity in said leukocytes.

2. (Original) The method according to claim 1 wherein the compound is selected from the group consisting of

2-(6-aminopurin-9-ylmethyl)-3-(2-chlorophenyl)-6,7-dimethoxy-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-6-bromo-3-(2-chlorophenyl)-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-3-(2-chlorophenyl)-7-fluoro-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-6-chloro-3-(2-chlorophenyl)-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-3-(2-chlorophenyl)-5-fluoro-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-5-chloro-3-(2-chlorophenyl)-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-3-(2-chlorophenyl)-5-methyl-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-8-chloro-3-(2-chlorophenyl)-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-3-biphenyl-2-yl-5-chloro-3H-quinazolin-4-one

5-chloro-2-(9H-purin-6-ylsulfanylmethyl)-3-o-tolyl-3H-quinazolin-4-one

5-chloro-3-(2-fluorophenyl)-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-5-chloro-3-(2-fluorophenyl)-3H-quinazolin-4-one

3-biphenyl-2-yl-5-chloro-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

5-chloro-3-(2-methoxyphenyl)-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

3-(2-chlorophenyl)-5-fluoro-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
3-(2-chlorophenyl)-6,7-dimethoxy-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
6-bromo-3-(2-chlorophenyl)-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
3-(2-chlorophenyl)-8-trifluoromethyl-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
3-(2-chlorophenyl)-2-(9H-purin-6-ylsulfanylmethyl)-3H-benzo[g]quinazolin-4-one
6-chloro-3-(2-chlorophenyl)-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
8-chloro-3-(2-chlorophenyl)-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
3-(2-chlorophenyl)-7-fluoro-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
3-(2-chlorophenyl)-7-nitro-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
3-(2-chlorophenyl)-6-hydroxy-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
5-chloro-3-(2-chlorophenyl)-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
3-(2-chlorophenyl)-5-methyl-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
3-(2-chlorophenyl)-6,7-difluoro-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
3-(2-chlorophenyl)-6-fluoro-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
2-(6-aminopurin-9-ylmethyl)-3-(2-isopropylphenyl)-5-methyl-3H-quinazolin-4-one
2-(6-aminopurin-9-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one

3-(2-fluorophenyl)-5-methyl-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
 2-(6-aminopurin-9-ylmethyl)-5-chloro-3-o-tolyl-3H-quinazolin-4-one
 2-(6-aminopurin-9-ylmethyl)-5-chloro-3-(2-methoxyphenyl)-3H-quinazolin-4-one
 2-(2-amino-9H-purin-6-ylsulfanylmethyl)-3-cyclopropyl-5-methyl-3H-quinazolin-4-one
 3-cyclopropylmethyl-5-methyl-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
 2-(6-aminopurin-9-ylmethyl)-3-cyclopropylmethyl-5-methyl-3H-quinazolin-4-one
 2-(2-amino-9H-purin-6-ylsulfanylmethyl)-3-cyclopropylmethyl-5-methyl-3H-quinazolin-4-one
 5-methyl-3-phenethyl-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
 2-(2-amino-9H-purin-6-ylsulfanylmethyl)-5-methyl-3-phenethyl-3H-quinazolin-4-one
 3-cyclopentyl-5-methyl-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
 2-(6-aminopurin-9-ylmethyl)-3-cyclopentyl-5-methyl-3H-quinazolin-4-one
 3-(2-chloropyridin-3-yl)-5-methyl-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
 2-(6-aminopurin-9-ylmethyl)-3-(2-chloropyridin-3-yl)-5-methyl-3H-quinazolin-4-one
 3-methyl-4-[5-methyl-4-oxo-2-(9H-purin-6-ylsulfanylmethyl)-4H-quinazolin-3-yl]-benzoic acid
 3-cyclopropyl-5-methyl-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
 2-(6-aminopurin-9-ylmethyl)-3-cyclopropyl-5-methyl-3H-quinazolin-4-one

5-methyl-3-(4-nitrobenzyl)-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
 3-cyclohexyl-5-methyl-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
 2-(6-aminopurin-9-ylmethyl)-3-cyclohexyl-5-methyl-3H-quinazolin-4-one
 2-(2-amino-9H-purin-6-ylsulfanylmethyl)-3-cyclohexyl-5-methyl-3H-quinazolin-4-one
 5-methyl-3-(E-2-phenylcyclopropyl)-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
 3-(2-chlorophenyl)-5-fluoro-2-[(9H-purin-6-ylamino)methyl]-3H-quinazolin-4-one
 2-[(2-amino-9H-purin-6-ylamino)methyl]-3-(2-chlorophenyl)-5-fluoro-3H-quinazolin-4-one
 5-methyl-2-[(9H-purin-6-ylamino)methyl]-3-o-tolyl-3H-quinazolin-4-one
 2-[(2-amino-9H-purin-6-ylamino)methyl]-5-methyl-3-o-tolyl-3H-quinazolin-4-one
 2-[(2-fluoro-9H-purin-6-ylamino)methyl]-5-methyl-3-o-tolyl-3H-quinazolin-4-one
 (2-chlorophenyl)-dimethylamino-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
 5-(2-benzyloxyethoxy)-3-(2-chlorophenyl)-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
 6-aminopurine-9-carboxylic acid 3-(2-chlorophenyl)-5-fluoro-4-oxo-3,4-dihydro-quinazolin-2-ylmethyl ester
 N-[3-(2-chlorophenyl)-5-fluoro-4-oxo-3,4-dihydro-quinazolin-2-ylmethyl]-2-(9H-purin-6-ylsulfanyl)-acetamide
 2-[1-(2-fluoro-9H-purin-6-ylamino)ethyl]-5-methyl-3-o-tolyl-3H-quinazolin-4-one

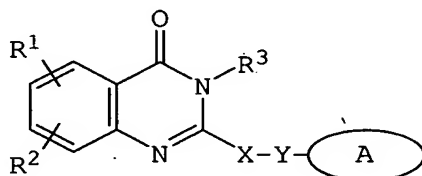
5-methyl-2-[1-(9H-purin-6-ylamino)ethyl]-3-o-tolyl-3H-quinazolin-4-one
 2-(6-dimethylaminopurin-9-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one
 5-methyl-2-(2-methyl-6-oxo-1,6-dihydro-purin-7-ylmethyl)-3-o-tolyl-3H-quinazolin-4-one
 5-methyl-2-(2-methyl-6-oxo-1,6-dihydro-purin-9-ylmethyl)-3-o-tolyl-3H-quinazolin-4-one
 2-(amino-dimethylaminopurin-9-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one
 2-(2-amino-9H-purin-6-ylsulfanylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one
 2-(4-amino-1,3,5-triazin-2-ylsulfanylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one
 5-methyl-2-(7-methyl-7H-purin-6-ylsulfanylmethyl)-3-o-tolyl-3H-quinazolin-4-one
 5-methyl-2-(2-oxo-1,2-dihydro-pyrimidin-4-ylsulfanylmethyl)-3-o-tolyl-3H-quinazolin-4-one
 5-methyl-2-purin-7-ylmethyl-3-o-tolyl-3H-quinazolin-4-one
 5-methyl-2-purin-9-ylmethyl-3-o-tolyl-3H-quinazolin-4-one
 5-methyl-2-(9-methyl-9H-purin-6-ylsulfanylmethyl)-3-o-tolyl-3H-quinazolin-4-one
 2-(2,6-Diamino-pyrimidin-4-ylsulfanylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one
 5-methyl-2-(5-methyl-[1,2,4]triazolo[1,5-a]pyrimidin-7-ylsulfanylmethyl)-3-o-tolyl-3H-quinazolin-4-one
 5-methyl-2-(2-methylsulfanyl-9H-purin-6-ylsulfanylmethyl)-3-o-tolyl-3H-quinazolin-4-one
 2-(2-hydroxy-9H-purin-6-ylsulfanylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one

5-methyl-2-(1-methyl-1H-imidazol-2-ylsulfanylmethyl)-3-o-tolyl-3H-quinazolin-4-one
 5-methyl-3-o-tolyl-2-(1H-[1,2,4]triazol-3-ylsulfanylmethyl)-3H-quinazolin-4-one
 2-(2-amino-6-chloro-purin-9-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one
 2-(6-aminopurin-7-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one
 2-(7-amino-1,2,3-triazolo[4,5-d]pyrimidin-3-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one
 2-(7-amino-1,2,3-triazolo[4,5-d]pyrimidin-1-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one
 2-(6-amino-9H-purin-2-ylsulfanylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one
 2-(2-amino-6-ethylamino-pyrimidin-4-ylsulfanylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one
 2-(3-amino-5-methylsulfanyl-1,2,4-triazol-1-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one
 2-(5-amino-3-methylsulfanyl-1,2,4-triazol-1-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one
 5-methyl-2-(6-methylaminopurin-9-ylmethyl)-3-o-tolyl-3H-quinazolin-4-one
 2-(6-benzylaminopurin-9-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one
 2-(2,6-diaminopurin-9-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one
 5-methyl-2-(9H-purin-6-ylsulfanylmethyl)-3-o-tolyl-3H-quinazolin-4-one
 3-isobutyl-5-methyl-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
 N-{2-[5-Methyl-4-oxo-2-(9H-purin-6-ylsulfanylmethyl)-4H-quinazolin-3-yl]-phenyl}-acetamide

5-methyl-3-(E-2-methyl-cyclohexyl)-2-(9H-purin-6-yl-sulfanylmethyl)-3H-quinazolin-4-one
 2-[5-methyl-4-oxo-2-(9H-purin-6-ylsulfanylmethyl)-4H-quinazolin-3-yl]-benzoic acid
 3-{2-[(2-dimethylaminoethyl)methylamino]phenyl}-5-methyl-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
 3-(2-chlorophenyl)-5-methoxy-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
 3-(2-chlorophenyl)-5-(2-morpholin-4-yl-ethylamino)-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
 3-benzyl-5-methoxy-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one
 2-(6-aminopurin-9-ylmethyl)-3-(2-benzyloxyphenyl)-5-methyl-3H-quinazolin-4-one;
 2-(6-aminopurin-9-ylmethyl)-3-(2-hydroxyphenyl)-5-methyl-3H-quinazolin-4-one;
 2-[1-(2-amino-9H-purin-6-ylamino)ethyl]-5-methyl-3-o-tolyl-3H-quinazolin-4-one;
 5-methyl-2-[1-(9H-purin-6-ylamino)propyl]-3-o-tolyl-3H-quinazolin-4-one;
 2-[1-(2-fluoro-9H-purin-6-ylamino)propyl]-5-methyl-3-o-tolyl-3H-quinazolin-4-one;
 2-[1-(2-amino-9H-purin-6-ylamino)propyl]-5-methyl-3-o-tolyl-3H-quinazolin-4-one;
 2-(2-benzyloxy-1-(9H-purin-6-ylamino)ethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one;
 2-(6-aminopurin-9-ylmethyl)-5-methyl-3-{2-(2-(1-methylpyrrolidin-2-yl)-ethoxy)-phenyl}-3H-quinazolin-4-one;
 2-(6-aminopurin-9-ylmethyl)-3-(2-(3-dimethylamino-propoxy)-phenyl)-5-methyl-3H-quinazolin-4-one;

2-(6-aminopurin-9-ylmethyl)-5-methyl-3-(2-prop-2-
ynyloxyphenyl)-3H-quinazolin-4-one; and
2-{2-[1-(6-aminopurin-9-ylmethyl)-5-methyl-4-oxo-4H-
quinazolin-3-yl]-phenoxy}-acetamide.

3. (Currently amended) A method of inhibiting kinase activity of a phosphatidylinositol 3-kinase delta polypeptide comprising a step of contacting the polypeptide with a compound having a structure



(I)

wherein A is an optionally substituted monocyclic 5-membered heterocyclic ring system containing two or three nitrogen atoms or a bicyclic ring system containing at least two nitrogen atoms, and at least one ring of the bicyclic system is aromatic;

X is selected from the group consisting of $C(R^b)_2$, CH_2CHR^b , and $CH=C(R^b)$;

Y is selected from the group consisting of null, S, SO, and SO_2 , NH, O, $C(=O)$, $OC(=O)$, $C(=O)O$, and $NHC(=O)CH_2S$;

R^1 and R^2 , independently, are selected from the group consisting of hydrogen, C_{1-6} alkyl, aryl, heteroaryl, halo, $NHC(=O)C_{1-3}$ alkylene $N(R^a)_2$, NO_2 , OR^a , CF_3 , OCF_3 , $N(R^a)_2$, CN, $OC(=O)R^a$, $C(=O)R^a$, $C(=O)OR^a$, $arylOR^b$, Het, $NR^aC(=O)C_{1-3}$ alkylene $C(=O)OR^a$, $arylO-C_{1-3}$ alkylene $N(R^a)_2$, $arylOC(=O)R^a$, C_{1-4} alkylene $C(=O)OR^a$, OC_{1-4} alkylene $C(=O)OR^a$, C_{1-4} alkylene OC_{1-4} alkylene $C(=O)OR^a$, $C(=O)NR^aSO_2R^a$, C_{1-4} alkylene $N(R^a)_2$, C_{2-6} alkenylene $N(R^a)_2$, $C(=O)NR^aC_{1-4}$ alkylene OR^a , $C(=O)NR^aC_{1-4}$ alkyleneHet,

$\text{OC}_{2-4}\text{alkyleneN(R}^a)_2$, $\text{OC}_{1-4}\text{alkyleneCH(OR}^b)\text{CH}_2\text{N(R}^a)_2$,
 $\text{OC}_{1-4}\text{alkyleneHet}$, $\text{OC}_{2-4}\text{alkyleneOR}^a$, $\text{OC}_{2-4}\text{alkylene-}$
 $\text{NR}^a\text{C(=O)OR}^a$, $\text{NR}^a\text{C}_{1-4}\text{alkyleneN(R}^a)_2$, $\text{NR}^a\text{C(=O)R}^a$, $\text{NR}^a\text{C(=O)-}$
 $\text{N(R}^a)_2$, $\text{N(SO}_2\text{C}_{1-4}\text{alkyl)}_2$, $\text{NR}^a(\text{SO}_2\text{C}_{1-4}\text{alkyl})$, $\text{SO}_2\text{N(R}^a)_2$,
 OSO_2CF_3 , $\text{C}_{1-3}\text{alkylenearyl}$, $\text{C}_{1-4}\text{alkyleneHet}$, $\text{C}_{1-6}\text{alkylene-}$
 OR^b , $\text{C}_{1-3}\text{alkyleneN(R}^a)_2$, $\text{C(=O)N(R}^a)_2$, $\text{NHC(=O)C}_{1-3}\text{alkyl-}$
 enearyl , $\text{C}_{3-8}\text{cycloalkyl}$, $\text{C}_{3-8}\text{heterocycloalkyl}$, aryl-
 $\text{OC}_{1-3}\text{alkyleneN(R}^a)_2$, arylOC(=O)R^b , $\text{NHC(=O)C}_{1-3}\text{alkylene-}$
 $\text{C}_{3-8}\text{heterocycloalkyl}$, $\text{NHC(=O)C}_{1-3}\text{alkyleneHet}$, $\text{OC}_{1-4}\text{alk-}$
 $\text{yleneOC}_{1-4}\text{alkyleneC(=O)OR}^b$, $\text{C(=O)C}_{1-4}\text{alkyleneHet}$, and
 $\text{NHC(=O)haloC}_{1-6}\text{alkyl}$;

or R^1 and R^2 are taken together to form a 3-
 or 4-membered alkylene or alkenylene chain component of
 a 5- or 6-membered ring, optionally containing at least
 one heteroatom;

R^3 is selected from the group consisting of
 optionally substituted hydrogen, $\text{C}_{1-6}\text{alkyl}$, $\text{C}_{3-8}\text{cyclo-}$
 alkyl , $\text{C}_{3-8}\text{heterocycloalkyl}$, $\text{C}_{1-4}\text{alkylenecycloalkyl}$,
 $\text{C}_{2-6}\text{alkenyl}$, $\text{C}_{1-3}\text{alkylenearyl}$, $\text{arylC}_{1-3}\text{alkyl}$, C(=O)R^a ,
 aryl , heteroaryl , C(=O)OR^a , $\text{C(=O)N(R}^a)_2$, $\text{C(=S)N(R}^a)_2$,
 SO_2R^a , $\text{SO}_2\text{N(R}^a)_2$, S(=O)R^a , $\text{S(=O)N(R}^a)_2$, $\text{C(=O)NR}^a\text{C}_{1-4}\text{alk-}$
 yleneOR^a , $\text{C(=O)NR}^a\text{C}_{1-4}\text{alkyleneHet}$, $\text{C(=O)C}_{1-4}\text{alkylenearyl}$,
 $\text{C(=O)C}_{1-4}\text{alkyleneheteroaryl}$, $\text{C}_{1-4}\text{alkylenearyl}$ substituted
 with one or more of $\text{SO}_2\text{N(R}^a)_2$, $\text{N(R}^a)_2$, C(=O)OR^a ,
 $\text{NR}^a\text{SO}_2\text{CF}_3$, CN , NO_2 , C(=O)R^a , OR^a , $\text{C}_{1-4}\text{alkyleneN(R}^a)_2$, and
 $\text{OC}_{1-4}\text{alkyleneN(R}^a)_2$, $\text{C}_{1-4}\text{alkyleneheteroaryl}$, $\text{C}_{1-4}\text{alkyl-}$
 eneHet , $\text{C}_{1-4}\text{alkyleneC(=O)C}_{1-4}\text{alkylenearyl}$, $\text{C}_{1-4}\text{alkylene-}$
 $\text{C(=O)C}_{1-4}\text{alkyleneheteroaryl}$, $\text{C}_{1-4}\text{alkyleneC(=O)Het}$,
 $\text{C}_{1-4}\text{alkyleneC(=O)N(R}^a)_2$, $\text{C}_{1-4}\text{alkyleneOR}^a$, $\text{C}_{1-4}\text{alkylene-}$
 $\text{NR}^a\text{C(=O)R}^a$, $\text{C}_{1-4}\text{alkyleneOC}_{1-4}\text{alkyleneOR}^a$, $\text{C}_{1-4}\text{alkylene-}$
 $\text{N(R}^a)_2$, $\text{C}_{1-4}\text{alkyleneC(=O)OR}^a$, and $\text{C}_{1-4}\text{alkyleneOC}_{1-4}\text{alkyl-}$
 eneC(=O)OR^a ;

R^a is selected from the group consisting of hydrogen, C₁₋₆alkyl, C₃₋₈cycloalkyl, C₃₋₈heterocycloalkyl, C₁₋₃alkyleneN(R^c)₂, aryl, arylC₁₋₃alkyl, C₁₋₃alkylenearyl, heteroaryl, heteroarylC₁₋₃alkyl, and C₁₋₃alkyleneheteroaryl;

or two R^a groups are taken together to form a 5- or 6-membered ring, optionally containing at least one heteroatom;

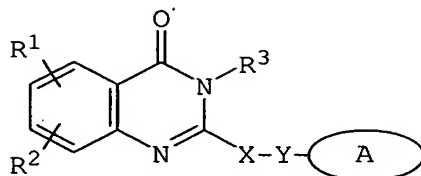
R^b is selected from the group consisting of hydrogen, C₁₋₆alkyl, heteroC₁₋₃alkyl, C₁₋₃alkyleneheteroC₁₋₃alkyl, arylheteroC₁₋₃alkyl, and aryl, heteroaryl, arylC₁₋₃alkyl, heteroarylC₁₋₃alkyl, C₁₋₃alkylenearyl, and C₁₋₃alkyleneheteroaryl;

R^c is selected from the group consisting of hydrogen, C₁₋₆alkyl, C₃₋₈cycloalkyl, aryl, and heteroaryl;

Het is a 5- or 6-membered heterocyclic ring, saturated or partially or fully unsaturated, containing at least one heteroatom selected from the group consisting of oxygen, nitrogen, and sulfur, selected from the group consisting of 1,3-dioxolane, 2-pyrazoline, pyrazolidine, pyrrolidine, piperazine, pyrroline, 2H-pyran, 4H-pyran, morpholine, thiomorpholine, piperidine, 1,4-dithiane, and 1,4-dioxane, and optionally substituted with C₁₋₄alkyl or C(=O)OR^a;

and pharmaceutically acceptable salts ~~and~~ or solvates thereof.

4. (Currently amended) A compound having a general structural formula



(I)

wherein A is an optionally substituted monocyclic 5-membered heterocyclic ring system containing two or three nitrogen atoms or a bicyclic ring system containing at least two nitrogen atoms, and at least one ring of the cyclic system is aromatic;

X is selected from the group consisting of C(R^b)₂, CH₂CHR^b, and CH=C(R^b);

Y is selected from the group consisting of null, S, SO, and SO₂, NH, O, C(=O), OC(=O), C(=O)O, and NHC(=O)CH₂S;

R¹ and R², independently, are selected from the group consisting of hydrogen, C₁₋₆alkyl, aryl, heteroaryl, halo, NHC(=O)C₁₋₃alkyleneN(R^a)₂, NO₂, OR^a, CF₃, OCF₃, N(R^a)₂, CN, OC(=O)R^a, C(=O)R^a, C(=O)OR^a, aryl-OR^b, Het, NR^aC(=O)C₁₋₃alkyleneC(=O)OR^a, arylOC₁₋₃alkyleneN(R^a)₂, arylOC(=O)R^a, C₁₋₄alkyleneC(=O)OR^a, OC₁₋₄alkyleneC(=O)OR^a, C₁₋₄alkyleneOC₁₋₄alkyleneC(=O)OR^a, C(=O)-NR^aSO₂R^a, C₁₋₄alkyleneN(R^a)₂, C₂₋₆alkenyleneN(R^a)₂, C(=O)-NR^aC₁₋₄alkyleneOR^a, C(=O)NR^aC₁₋₄alkyleneHet, OC₂₋₄alkyleneN(R^a)₂, OC₁₋₄alkyleneCH(OR^b)CH₂N(R^a)₂, OC₁₋₄alkyleneHet, OC₂₋₄alkyleneOR^a, OC₂₋₄alkyleneNR^aC(=O)OR^a, NR^aC₁₋₄alkyleneN(R^a)₂, NR^aC(=O)R^a, NR^aC(=O)N(R^a)₂, N(SO₂C₁₋₄alkyl)₂,

$\text{NR}^a(\text{SO}_2\text{C}_{1-4}\text{alkyl})$, $\text{SO}_2\text{N}(\text{R}^a)_2$, OSO_2CF_3 , $\text{C}_{1-3}\text{alkylenearyl}$,
 $\text{C}_{1-4}\text{alkyleneHet}$, $\text{C}_{1-6}\text{alkyleneOR}^b$, $\text{C}_{1-3}\text{alkyleneN}(\text{R}^a)_2$,
 $\text{C}(=\text{O})\text{N}(\text{R}^a)_2$, $\text{NHC}(=\text{O})\text{C}_{1-3}\text{alkylenearyl}$, $\text{C}_{3-8}\text{cycloalkyl}$,
 $\text{C}_{3-8}\text{heterocycloalkyl}$, $\text{arylOC}_{1-3}\text{alkyleneN}(\text{R}^a)_2$, aryl-
 $\text{OC}(=\text{O})\text{R}^b$, $\text{NHC}(=\text{O})\text{C}_{1-3}\text{alkyleneC}_{3-8}\text{heterocycloalkyl}$,
 $\text{NHC}(=\text{O})\text{C}_{1-3}\text{alkyleneHet}$, $\text{OC}_{1-4}\text{alkyleneOC}_{1-4}\text{alkylene-}$
 $\text{C}(=\text{O})\text{OR}^b$, $\text{C}(=\text{O})\text{C}_{1-4}\text{alkyleneHet}$, and $\text{NHC}(=\text{O})\text{haloC}_{1-6}\text{alkyl}$;

or R^1 and R^2 are taken together to form a 3-
 or 4-membered alkylene or alkenylene chain component of
 a 5- or 6-membered ring, optionally containing at least
 one heteroatom;

R^3 is selected from the group consisting of
 optionally substituted hydrogen, $\text{C}_{1-6}\text{alkyl}$, $\text{C}_{3-8}\text{cyclo-}$
 alkyl , $\text{C}_{3-8}\text{heterocycloalkyl}$, $\text{C}_{1-4}\text{alkylenecycloalkyl}$,
 $\text{C}_{2-6}\text{alkenyl}$, $\text{C}_{1-3}\text{alkylenearyl}$, $\text{arylC}_{1-3}\text{alkyl}$, $\text{C}(=\text{O})\text{R}^a$,
 aryl , heteroaryl , $\text{C}(=\text{O})\text{OR}^a$, $\text{C}(=\text{O})\text{N}(\text{R}^a)_2$, $\text{C}(=\text{S})\text{N}(\text{R}^a)_2$,
 SO_2R^a , $\text{SO}_2\text{N}(\text{R}^a)_2$, $\text{S}(=\text{O})\text{R}^a$, $\text{S}(=\text{O})\text{N}(\text{R}^a)_2$, $\text{C}(=\text{O})\text{NR}^a\text{C}_{1-4}\text{alk-}$
 yleneOR^a , $\text{C}(=\text{O})\text{NR}^a\text{C}_{1-4}\text{alkyleneHet}$, $\text{C}(=\text{O})\text{C}_{1-4}\text{alkylenearyl}$,
 $\text{C}(=\text{O})\text{C}_{1-4}\text{alkyleneheteroaryl}$, $\text{C}_{1-4}\text{alkylenearyl}$ substituted
 with one or more of $\text{SO}_2\text{N}(\text{R}^a)_2$, $\text{N}(\text{R}^a)_2$, $\text{C}(=\text{O})\text{OR}^a$,
 $\text{NR}^a\text{SO}_2\text{CF}_3$, CN , NO_2 , $\text{C}(=\text{O})\text{R}^a$, OR^a , $\text{C}_{1-4}\text{alkyleneN}(\text{R}^a)_2$, and
 $\text{OC}_{1-4}\text{alkyleneN}(\text{R}^a)_2$, $\text{C}_{1-4}\text{alkyleneheteroaryl}$, $\text{C}_{1-4}\text{alkylene-}$
 Het , $\text{C}_{1-4}\text{alkyleneC}(=\text{O})\text{C}_{1-4}\text{alkylenearyl}$, $\text{C}_{1-4}\text{alkyleneC}(=\text{O})-$
 $\text{C}_{1-4}\text{alkyleneheteroaryl}$, $\text{C}_{1-4}\text{alkyleneC}(=\text{O})\text{Het}$, $\text{C}_{1-4}\text{alkyl-}$
 $\text{eneC}(=\text{O})\text{N}(\text{R}^a)_2$, $\text{C}_{1-4}\text{alkyleneOR}^a$, $\text{C}_{1-4}\text{alkyleneNR}^a\text{C}(=\text{O})\text{R}^a$,
 $\text{C}_{1-4}\text{alkyleneOC}_{1-4}\text{alkyleneOR}^a$, $\text{C}_{1-4}\text{alkyleneN}(\text{R}^a)_2$, $\text{C}_{1-4}\text{alk-}$
 $\text{yleneC}(=\text{O})\text{OR}^a$, and $\text{C}_{1-4}\text{alkyleneOC}_{1-4}\text{alkyleneC}(=\text{O})\text{OR}^a$;

R^a is selected from the group consisting of
 hydrogen, $\text{C}_{1-6}\text{alkyl}$, $\text{C}_{3-8}\text{cycloalkyl}$, $\text{C}_{3-8}\text{heterocycloalkyl}$,
 $\text{C}_{1-3}\text{alkyleneN}(\text{R}^c)_2$, aryl , $\text{arylC}_{1-3}\text{alkyl}$, $\text{C}_{1-3}\text{alkylenearyl}$,
 heteroaryl , $\text{heteroarylC}_{1-3}\text{alkyl}$, and $\text{C}_{1-3}\text{alkylenehetero-}$
 aryl ;

or two R^a groups are taken together to form a 5- or 6-membered ring, optionally containing at least one heteroatom;

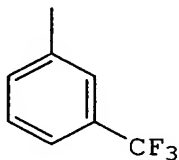
R^b is selected from the group consisting of hydrogen, C₁₋₆alkyl, heteroC₁₋₃alkyl, C₁₋₃alkyleneheteroC₁₋₃alkyl, arylheteroC₁₋₃alkyl, and aryl, heteroaryl, arylC₁₋₃alkyl, heteroarylC₁₋₃alkyl, C₁₋₃alkylenearyl, and C₁₋₃alkyleneheteroaryl;

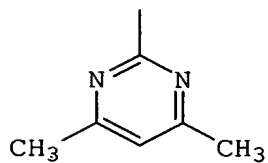
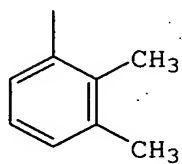
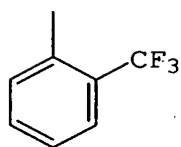
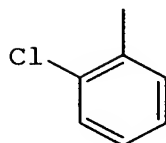
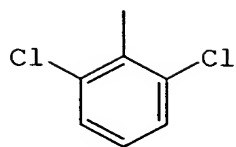
R^c is selected from the group consisting of hydrogen, C₁₋₆alkyl, C₃₋₈cycloalkyl, aryl, and heteroaryl;

Het is a 5- or 6-membered heterocyclic ring, saturated or partially or fully unsaturated, containing at least one heteroatom selected from the group consisting of oxygen, nitrogen, and sulfur, selected from the group consisting of 1,3-dioxolane, 2-pyrazoline, pyrazolidine, pyrrolidine, piperazine, pyrroline, 2H-pyran, 4H-pyran, morpholine, thiomorpholine, piperidine, 1,4-dithiane, and 1,4-dioxane, and optionally substituted with C₁₋₄alkyl or C(=O)OR^a;

and pharmaceutically acceptable salts and or solvates thereof,

with the provisos that if X-Y is CH₂S, then R³ is different from



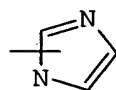
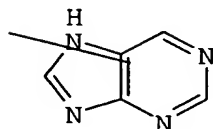
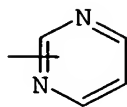


and if X-Y is CH₂S, then R³ is different from
 -CH₂CH(OH)CH₂OH substituted phenyl.

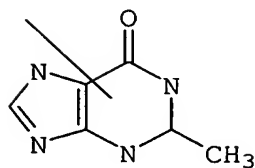
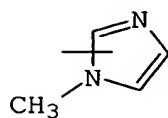
5. (Original) The compound of claim 4 wherein X is selected from the group consisting of CH_2 , CH_2CH_2 , $\text{CH}=\text{CH}$, $\text{CH}(\text{CH}_3)$, $\text{CH}(\text{CH}_2\text{CH}_3)$, and $\text{CH}_2\text{CH}(\text{CH}_3)$, and $\text{C}(\text{CH}_3)_2$.

6. (Original) The compound of claim 5 wherein Y is selected from the group consisting of null, S, and NH.

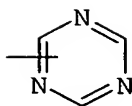
7. (Original) The compound of claim 5 wherein the A ring system is selected from the group consisting of



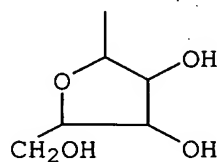
, and



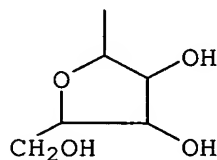
, and



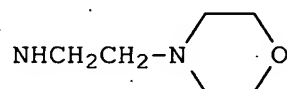
8. (Original) The compound of claim 7 wherein the A ring system is substituted with one to three substituents selected from the group consisting of $N(R^a)_2$, halo, C_{1-3} alkyl, $S(C_{1-3}$ alkyl), OR^a , and



9. (Original) The compound of claim 8 wherein the A ring system is substituted with one to three substituents selected from the group consisting of NH_2 , $NH(CH_3)$, $N(CH_3)_2$, $NHCH_2C_6H_5$, $NH(C_2H_5)$, Cl, F, CH_3 , SCH_3 , OH, and



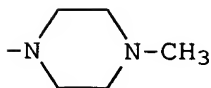
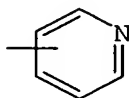
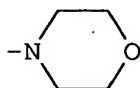
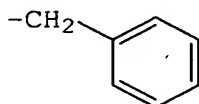
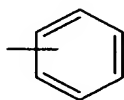
10. (Original) The compound of claim 5 wherein R^1 and R^2 , independently, are selected from the group consisting of hydrogen, OR^a , halo, C_{1-6} alkyl, CF_3 , NO_2 , $N(R^a)_2$, $NR^aC_{1-3}alkyleneN(R^a)_2$, and $OC_{1-3}alkyleneOR^a$. Specific substituents include, but are not limited to, H, OCH_3 , Cl, Br, F, CH_3 , CF_3 , NO_2 , OH, $N(CH_3)_2$,

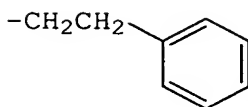
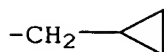
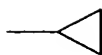


and $O(CH_2)_2OCH_2C_6H_5$, or R^1 and R^2 are taken together to form a five- or six-membered ring.

11. (Original) The compound of claim 5 wherein R^3 is selected from the group consisting of C_{1-6} alkyl, aryl, heteroaryl, C_{3-8} cycloalkyl, C_{3-8} hetero-cycloalkyl, $C(=O)OR^a$, $C_{1-4}alkyleneHet$, $C_{1-4}alkylenecyclo-$ alkyl, $C_{1-4}alkylenearyl$, $C_{1-4}alkyleneC(=O)C_{1-4}alkylene-$ aryl, $C_{1-4}alkyleneC(=O)OR^a$, $C_{1-4}alkyleneC(=O)N(R^a)_2$, $C_{1-4}alkyleneC(=O)Het$, $C_{1-4}alkyleneN(R^a)_2$, and $C_{1-4}alkyleneNR^aC(=O)R^a$.

12. (Original) The compound of claim 5 wherein R^3 is selected from the group consisting of OR^a , C_{1-6} alkyl, aryl, heteroaryl, NO_2 , $N(R^a)_2$, $NR^aC(=O)R^a$, $C(=O)OC_2H_5$, $CH_2CH(CH_3)_2$,



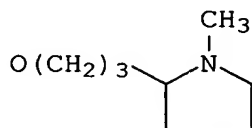


, and



13. (Original) The compound of claim 4 wherein R^3 is substituted with a substituent selected from the group consisting of halo, OR^a , C_{1-6} alkyl, aryl, heteroaryl, NO_2 , $N(R^a)_2$, $NR^aSO_2CF_3$, $NR^aC(=O)R^a$, $C(=O)OR^a$, $SO_2N(R^a)_2$, CN, $C(=O)R^a$, C_{1-4} alkylene $N(R^a)_2$, OC_{1-4} alkylene $C\equiv CR^a$, OC_{1-4} alkylene $C(=O)N(R^a)_2$, OC_{1-4} alkylenearyl, OC_{1-4} alkyleneheteroaryl, OC_{1-4} alkyleneHet, OC_{1-4} alkylene $N(R^a)_2$, and $N(R^a)C_{1-4}$ alkylene $N(R^a)_2$.

14. (Original) The compound of claim 4 wherein R^3 is substituted with a substituent selected from the group consisting of Cl, F, CH_3 , $CH(CH_3)_2$, OH, OCH_3 , $OCH_2C_6H_5$, $O(CH_2)_3N(CH_3)_2$, $OCH_2C\equiv CH$, $OCH_2C(=O)NH_2$, C_6H_5 , NO_2 , NH_2 , $NHC(=O)CH_3$, CO_2H , and $N(CH_3)CH_2CH_2N(CH_3)_2$, and



15. The compound of claim 4 selected from the group consisting of:

2-(6-aminopurin-9-ylmethyl)-3-(2-benzyloxyphenyl)-5-methyl-3H-quinazolin-4-one;

2-(6-aminopurin-9-ylmethyl)-3-(2-hydroxyphenyl)-5-methyl-3H-quinazolin-4-one;

2-(1-(2-amino-9H-purin-6-ylamino)ethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one;

5-methyl-2-[1-(9H-purin-6-ylamino)propyl]-3-o-tolyl-3H-quinazolin-4-one;

2-(1-(2-fluoro-9H-purin-6-ylamino)propyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one;

2-(1-(2-amino-9H-purin-6-ylamino)propyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one;

2-(2-benzyloxy-1-(9H-purin-6-ylamino)ethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one;

2-(6-aminopurin-9-ylmethyl)-5-methyl-3-{2-(2-(1-methylpyrrolidin-2-yl)-ethoxy)-phenyl}-3H-quinazolin-4-one;

2-(6-aminopurin-9-ylmethyl)-3-(2-(3-dimethylaminopropoxy)-phenyl)-5-methyl-3H-quinazolin-4-one;

2-(6-aminopurin-9-ylmethyl)-5-methyl-3-(2-prop-2-ynyloxyphenyl)-3H-quinazolin-4-one; and

2-{2-[1-(6-aminopurin-9-ylmethyl)-5-methyl-4-oxo-4H-quinazolin-3-yl]-phenoxy}-acetamide.